JS

PATENT COOPERATION TREATY

URGENT!

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:
G.E. EHRLICH (1995) LTD.
28 BEZALEL STREET
RAMAT GAN, ISRAEL 52 521

RECEIVED
06 MAR 2005
FILE No. 22939
G.E. EHRLICH (1995) LTD.

PCT

WRITTEN OPINION

(PCT Rule 66)

Applicant's or agent's file reference 0122939	Date of Mailing (*day/month/year*) 17 FEB 2005 (d) REPLY DUE within 1 months/days from the above date of mailing

International application No.	International filing date (*day/month/year*)	Priority date (*day/month/year*)
PCT/US02/90230	05 March 2002 (05.03.2002)	05 March 2001 (05.03.2001)

International Patent Classification (IPC) or both national classification and IPC

IPC(7): C12N 12/29, 15/82, 5/04. 15/29; A01H 5/00 and US Cl.: 536/23.1, 23.6, 24.1, 24.3; 435/ 468, 419; 800/278,

Applicant

YISSUM RESEARCH DEVELOPMENT COMPANY OF THE HEBREW

1. This written opinion is the first (first, etc,) drawn by this International Preliminary Examining Authority.

2. This opinion contains indications relating to the following items:

I	☒	Basis of the opinion
II	☐	Priority
III	☒	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
IV	☐	Lack of unity of invention
V	☒	Reasoned statement under Rule 66.2 (a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
VI	☐	Certain documents cited
VII	☐	Certain defects in the international application
VIII	☐	Certain observations on the international application

3. The applicant is hereby **invited to reply** to this opinion.

When? See the time limit indicated above. ~~The applicant may, before the expiration of that time limit, request this Authority to grant an extension. See rule 66.2(d).~~

How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also For an additional opportunity to submit amendments, see Rule 66.4.
For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4 *bis*.
For an informal communication with the examiner, see Rule 66.6

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.

4. The final date by which the international preliminary examination report must be established according to Rule 69.2 is: 05 July 2003 (05.07.2003).

Name and mailing address of the IPEA/US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer Stuart F. Baum Telephone No. 703-308-0196

Janice Ford
for

Form PCT/IPEA/408 (cover sheet)(July 1998)

WRITTEN OPINION

International application No.
PCT/US02/90230

I. Basis of the opinion

1. With regard to the **elements** of the international application:*

☒ the international application as originally filed

☒ the description:
pages 1-80, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.

☒ the claims:
pages 81-100, as originally filed
pages NONE, as amended (together with any statement) under Article 19
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.

☒ the drawings:
pages 1-18, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.

☒ the sequence listing part of the description:
pages 1-45, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language _____ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule23.1(b)).

☐ the language of publication of the international application (under Rule 48.3(b)).

☐ the language of the translation furnished for the purposes of international preliminary examination(under Rules 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the written opinion was drawn on the basis of the sequence listing:

☒ contained in the international application in printed form.

☒ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☒ The amendments have resulted in the cancellation of:

☒ the description, pages none

☒ the claims, Nos. none

☒ the drawings, sheets/fig none

5. ☐ This opinion has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

** Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed."*

WRITTEN OPINION

International application No.
PCT/US02/90230

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The question whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application,

☒ claims Nos. 1-45 (in part) and 46-113

because:

☐ the said international application, or the said claim Nos. _____ relate to the following subject matter which does not require international preliminary examination *(specify)*:

☐ the description, claims or drawings *(indicate particular elements below)* or said claims Nos. _____ are so unclear that no meaningful opinion could be formed *(specify)*:

☐ the claims, or said claims Nos. _____ are so inadequately supported by the description that no meaningful opinion could be formed.

☒ no international search report has been established for said claims Nos. 1-45 (in part) and 46-113.

2. A written opinion cannot be drawn due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the standard.

☐ the computer readable form has not been furnished or does not comply with the standard.

WRITTEN OPINION

International application No.
PCT/US02/90230

V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. STATEMENT

Novelty (N)	Claims	Please See Continuation Sheet	YES
	Claims	Please See Continuation Sheet	NO
Inventive Step (IS)	Claims	Please See Continuation Sheet	YES
	Claims	Please See Continuation Sheet	NO
Industrial Applicability (IA)	Claims	Please See Continuation Sheet	YES
	Claims	Please See Continuation Sheet	NO

2. CITATIONS AND EXPLANATIONS
Please See Continuation Sheet

Supplemental Box
(To be used when the space in any of the preceding boxes is not sufficient)

TIME LIMIT:
The time limit set for response to a Written Opinion may not be extended. 37 CFR 1.484(d). Any response received after the expiration of the time limit set in the Written Opinion will not be considered in preparing the International Preliminary Examination Report.

V.1. Reasoned Statements:
The opinion as to Novelty was positive (Yes)with respect to claims 2-5, 7-8, 14-15 17-20, 22-23, 29-30 32-35, 37-38, 44-45
The opinion as to Novelty was negative (No) with respect to claims 1, 6, 9-13, 16, 21, 24-28, 31, 36, 39-43,
The opinion as to Inventive Step was positive (Yes)with respect to claims 7-8, 14, 22-23, 29, 37-38, 44
The opinion as to Inventive Step was negative(NO) with respect to claims 1-6, 9-13, 15-21, 24-28, 30-36, 39-43, 45
The opinion as to Industrial Applicability was positive (YES) with respect to claims 1-45
The opinion as to Industrial Applicability was negative(NO) with respect to claims NONE

V. 2. Citations and Explanations:
Claims 1, 6, 9-13, 16, 21, 24-28, 31, 36, and 39-43, lack novelty under PCT Article 33(2) as being anticipated by Imanaka et al. The claims of the instant application are drawn to an isolated nucleic acid comprising a polynucleotide encoding a boiling stable protein, a detergent stable protein or a protease resistant protein, wherein said protein has chaperone-like activity and wherein the polynucleotide is operably linked to a promoter, wherein the promoter is a prokaryotic promoter, wherein the protein is natively an oligomer, wherein said chaperone-like activity includes heat stabilization of proteins, a nucleic acid construct comprising said polynucleotide, or a cell or organism transformed with said polynucleotide. Imanaka et al disclose a polynucleotide encoding a chaperon protein, GroESL, isolated from hyperthemophilic archaeon bacteria (page 5, line 9) subcloned into an expression cassette (pages 5-7), operably linked to a T7 promoter operable in prokaryotic bacteria (page 3, line 15) and transformation and expression in bacteria (page 7, example 3). Given Applicants definition of a boiling stable, detergent stable and protease resistant protein on page 30, lines 24-30 and page 31, lines 1-6 (i.e., "boiling stable" refers to major (above 50%) structural oligomeric stability following treatment at substantially 100C in aqueous solution for at least 10 minutes, "detergent stable" refers to major (above 50%) structural oligomeric stability of an oligomeric protein following treatment in aqueous solution containing 1/2000 molar ratio (monomer:SDS) and "protease resistant" refers to major (above 50%) stability following treatment in aqueous solution containing 50 ug per ml proteinase K for at least 60 minutes at 37C), respectively, it would be inherent that Imanaka's isolated polynucleotide would encode a boiling stable protein because it was isolated from an organism that lives at 80C or higher (page 5, lines 17-18) and said chaperone would also be detergent and protease resistant, and as such, Imanaka et al anticipate the claimed invention.

Claims 1-6, 9-13, 16-21, 24-28, 31-36, and 39-43 lack an inventive step under PCT Article 33(3) as being obvious over Imanaka et al. Given the teachings of Imanaka et al as discussed above, it would be obvious to substitute the prokaryotic promoter with a promoter operable in eukaryotic cells or organism, wherein the promoter is constitutive, or wherein the promoter is a constitutive and operable in plants, or wherein the promoter is selected from the list of promoters listed in claims 5, 20, or 35.

Claims 15, 30, and 45 lack an inventive step under PCT Article 33(3) as being obvious over Soto et al. The claims are drawn to a method of isolating a gene encoding a boiling stable, detergent stable or protease resistant protein having chaperone-like activity comprising screening an expression library with a polynucleotide encoding a boiling stable, detergent stable or protease resistant protein, respectively wherein said protein has chaperone-like activity. Soto et al teach isolating a small heat-shock protein that shows molecular chaperone activity. Soto et al teach isolating a cDNA that encodes said protein by screening a cDNA library with a nucleic acid encoding a sunflower HSP17.6. It would have been obvious to one skilled in the art to substitute the cDNA encoding the HSP17.6 with a cDNA encoding a boiling stable, detergent stable or protease resistant protein given the absence of evidence to the contrary.

Supplemental Box
(To be used when the space in any of the preceding boxes is not sufficient)

Claims 7-8, 14, 22-23, 29, 37-38, and 44 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest an isolated nucleic acid comprising a polynucleotide encoding a boiling stable, detergent stable or protease resistant protein wherein said protein has chaperone-like activity, wherein the polynucleotide is operably linked to a promoter wherein the polynucleotide has a sequence at least 60% identical with SEQ ID NO:1, wherein said protein has a sequence at least 60% homologous to SEQ ID NO:2, or wherein the polynucleotide encodes a fusion protein.

Claims 1-45 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.